

XLIII.—*Miscellanea Zoologica*. By GEORGE JOHNSTON, M.D., Fellow of the Royal College of Surgeons of Edinburgh. With Plates X. and XI.

[Continued from p. 232.]

BRITISH ANNELIDES.

IN the month of June of the present year, Mr. Edward Forbes, accompanied by Mr. Goodsir, visited the islands of Orkney and Shetland, with a view to the investigation of the marine zoology of the northernmost district of Britain*. The Annelides which were collected during this tour, Mr. Forbes, with a liberality I am most anxious to acknowledge, entrusted to my examination; and I am now about to give the result of it to the public, in the hope that this may interest such naturalists as devote themselves to the study of our native Fauna.

Of the *Aphroditaceæ*, there were, in this collection, specimens of *Aphrodita aculeata* in a young state; of an *Aphrodita* nearly allied to the *A. hystrix* of Savigny; and of my *Sigalion Boa*. The new *Aphrodita* belongs to the section of the genus that is distinguished by having the scales or elytra naked or uncovered, and is the first British example of the kind. The specimen presented to me is 14 lines in length, and 4 in its greatest breadth: the body is elliptical, rather narrower posteriorly than in front, of a uniform greyish white colour, somewhat hairy and hispid on the sides from the various bristles which garnish the feet. (Plate X. fig. 1, 2.) The *scales* form a series on each side; they are roundish, smooth, thin and flexible, vesicular in the specimen, probably from immersion in the spirits; there are 15 pairs of them, but the 2 first pairs and the 3 caudal ones are so small as to be easily overlooked. The *head* (fig. 3.) is entirely concealed under the front scales. It is furnished with two proportionably large setaceous smooth *palpi*, approximated at the base, but I was not able to detect any antennæ. The *mouth* (fig. 4.) is inferior, large, circular, puckered, armed with a strong retractile *proboscis*, the orifice of which is encircled with a row of ten-

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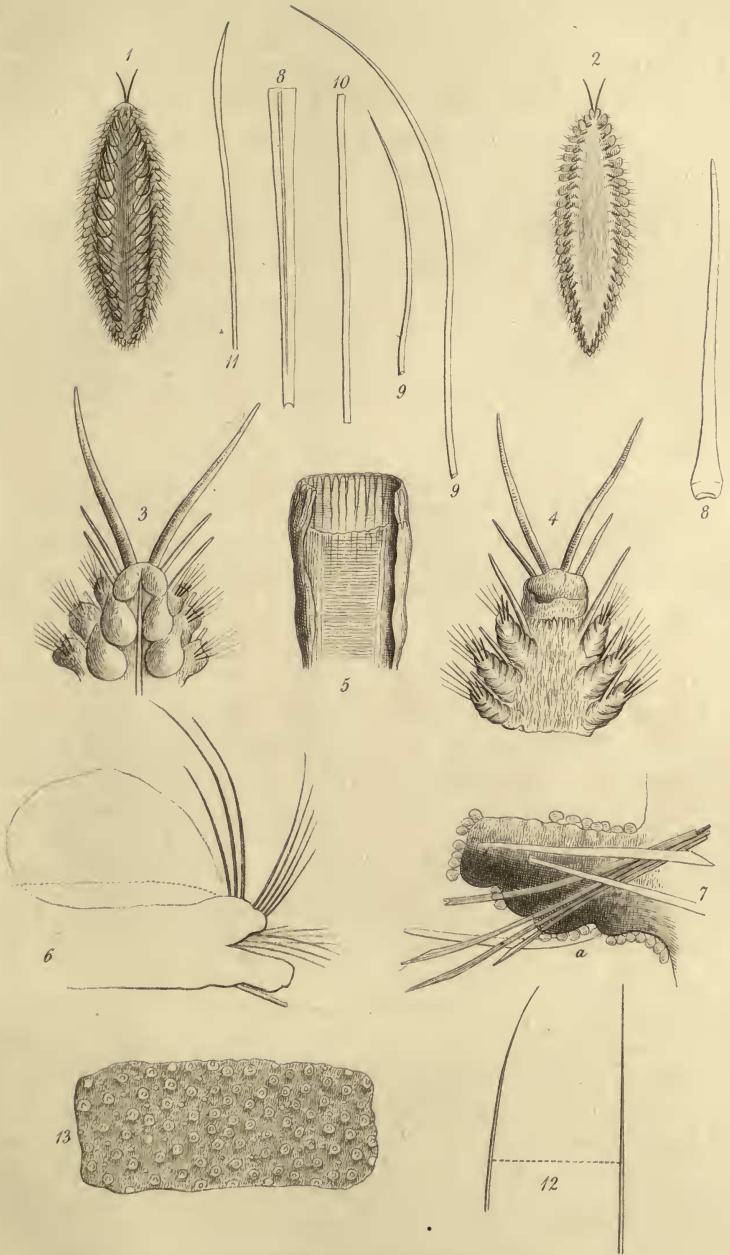
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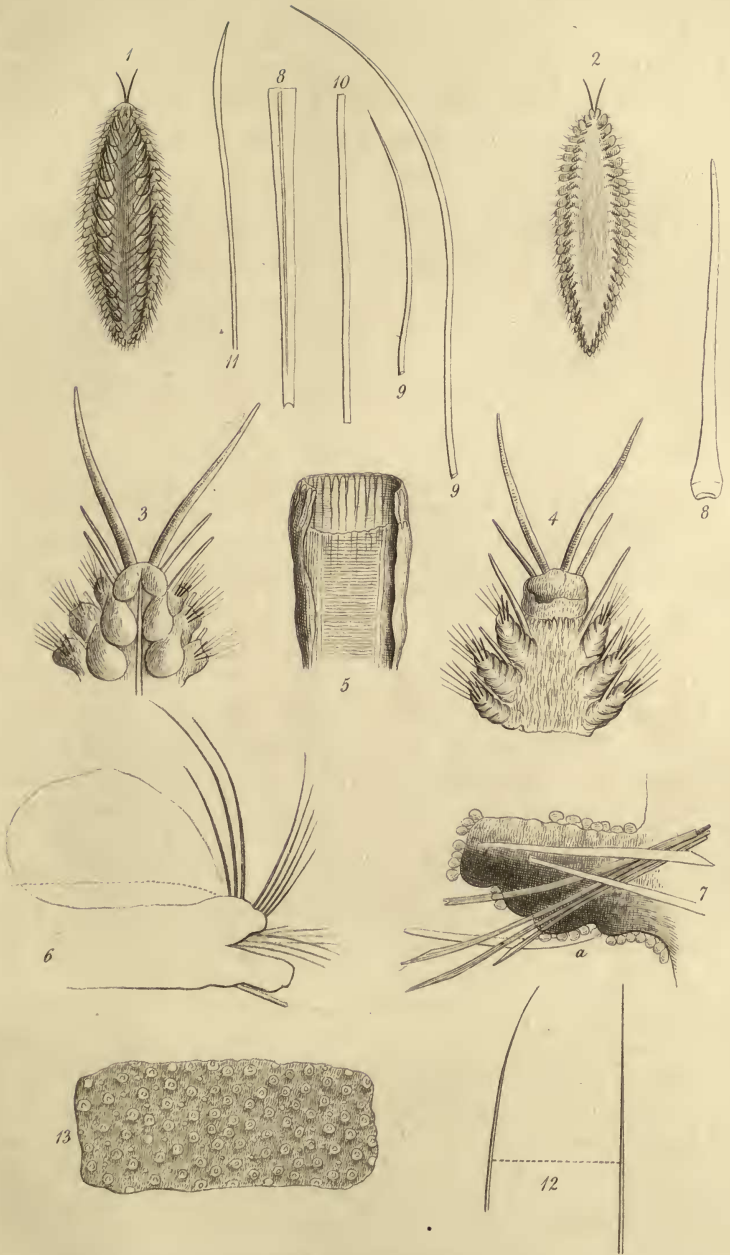
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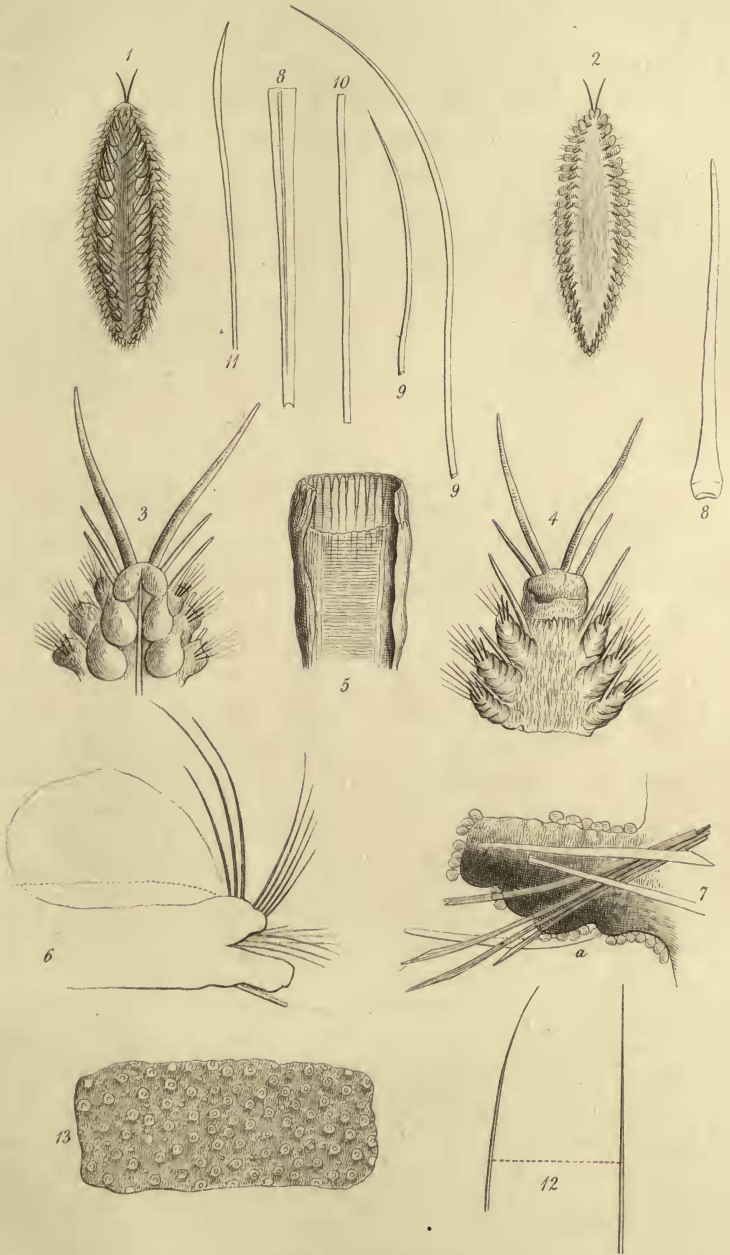
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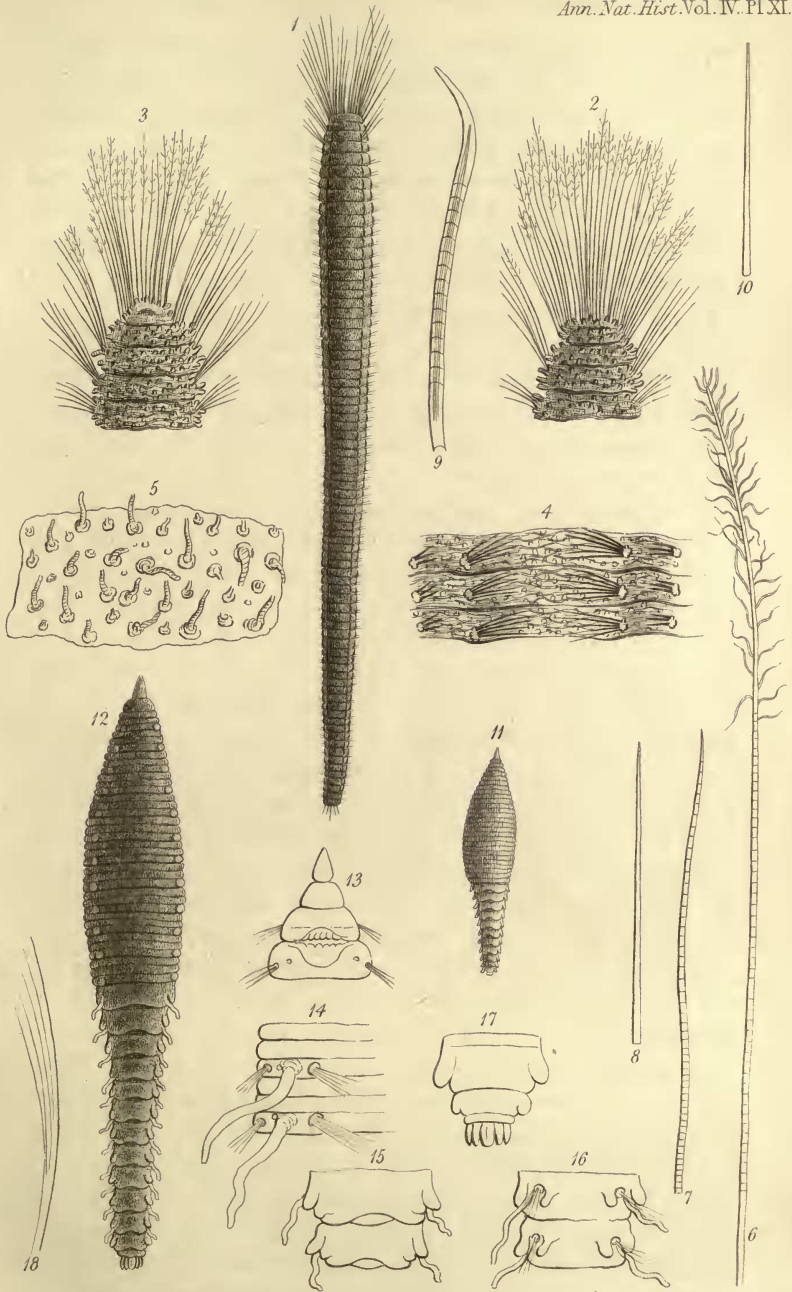


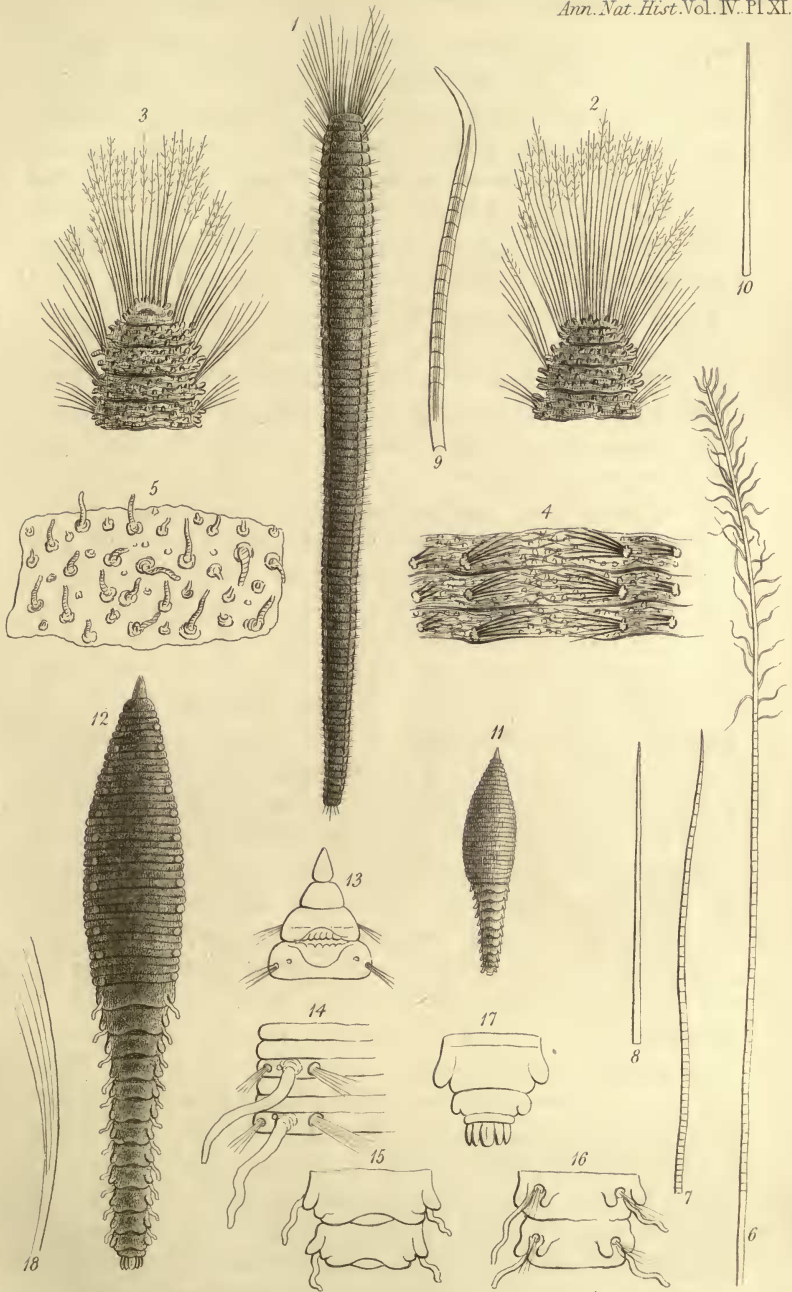


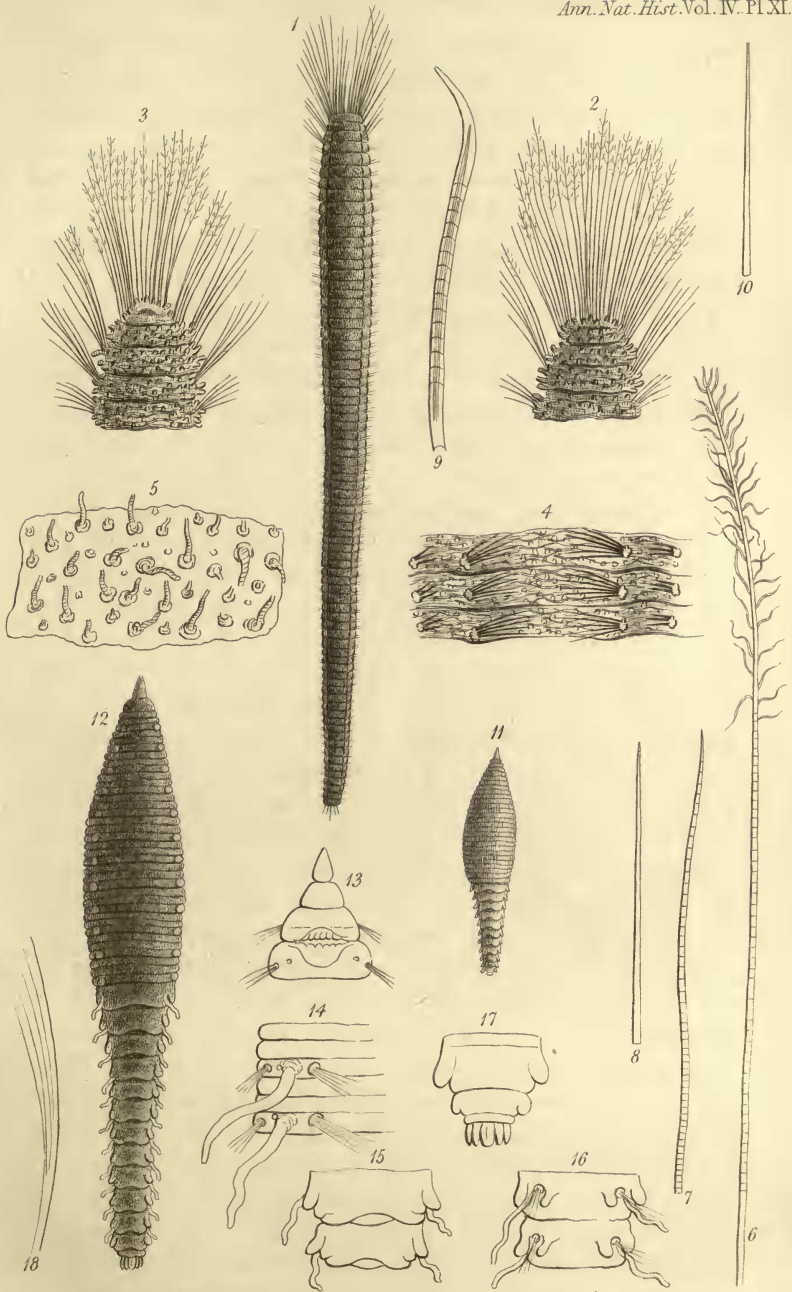


















tacular papillæ (fig. 5.), but there is no appearance of jaws. There seemed to be 30 feet on each side, but, from the closeness and minuteness of the posterior pairs, the number was not very exactly to be counted: they are biramous, the branches widely apart. The *dorsal branch* (fig. 6.) of every alternate foot carries a scale or elytron, and is armed with spines, various bristles, and a sort of tangled hair, which partially covers the scale. It is shorter than the ventral branch, obtuse, somewhat sinuated, and contains two spines: the dorsal fascicle of bristles is long, reflected backwards, the bristles unequal in length, rather slender, sharp-pointed, smooth, and curved: the next fascicle consists of similar bristles but shorter; and there is a still lower fascicle of very slender ones. The *ventral branch* (fig. 7.) of the foot is strong, rugose, obtusely conoid, covered with minute transparent vesicles, and armed with five stout bristles, and with a spine of a yellowish colour. The bristles are not extruded from the extremity, but from a sort of projection beneath it: the two upper ones are filiform, obtuse, and of a dark brown colour; the two next are most protruded, smooth, paler, with a sharp slightly curved point; and the under one is short and acutely pointed like a dagger. This branch then is armed with no less than four different sorts of bristles, calculated both to cut and lacerate and to pierce any opposing body; but besides all these there is a soft filament (*inferior cirrus*, fig. 7, a.) that originates from a bulb near the base, and is long enough to reach considerably beyond the extremity of the foot. This is evidently a feeler, with which the worm acquaints itself with the nature of the opposing body,—whether an enemy that it needs to repulse by the extrusion of its formidable weapons, or a feebler animal that it can overcome and make its prey. To assist its tactic powers there are besides many *tentacular filaments* on each side, which originate from the dorsal branch of every alternate foot: these are smooth and subulate, and, except in their lesser size, resemble the palpi. The *spines* (fig. 8.) are of a light yellow colour, tapering from a broad base to an obtuse point, smooth and transparent: the *bristles* (fig. 9—12.) are brown with a bronzed lustre, various in size and strength, but all of them quite smooth. The surface of the *belly* has a

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pearly hue, and the skin is thickly covered with minute vesicular granules (fig 13.), similar to those which are seen on certain parts of the foot. The use of these is probably to give the worm a firmer hold on the ground, and prevent any retrograde movement from the various evolutions of the feet. In examining this complicated structure it is scarcely possible to refrain from some expression of surprise. "In figuris animantium (etiam minutarum) quam solers subtilisque descriptio partium, quamque admirabilis fabrica membrorum! Omnia, enim, quæ quidem intus inclusa sunt, ita nata atque ita locata sunt, ut nihil eorum supervacaneum sit, nihil ad vitam detinendam non necessarium*."

From the remarks of Audouin and Milne-Edwards, it appears that *Aphrodita hystrix* is subject to considerable variety in size, shape, and in the length of its feet†; and of course it would be frivolous to found any distinction of species on these particulars. But an inspection of their figure shows *Aph. hystrix* to be a more hispid worm than the one now described; and there are other characters which seem to me sufficient to prove them distinct. I propose therefore to call the British species *Aph. borealis*; and the specific characters of the two species may be thus given:—

APH. HYSTRIX, scales naked; proboscis with minute jaws; some bristles of the dorsal foot serrulate at their points; those of the ventral foot somewhat forked; inferior cirrus very short.—Aud. and Milne-Edwards, Litt. de la France, ii. p. 70. pl. 1. fig. 1—9.

APH. BOREALIS, scales naked; proboscis edentulous; all the bristles of the feet smooth; those of the ventral foot simple; inferior cirrus rather long.

PLATE X. Fig. 1. *Aph. borealis* of the natural size. 2. The same on the ventral aspect. 3. The anterior part magnified. 4. The same seen from below. 5. The proboscis laid open. 6. An outline of a foot. 7. The ventral branch of a foot more highly magnified. 8. Two spines. 9. Bristles of the superior fascicle. 10. A filiform bristle. 11. A bristle from the ventral branch. 12. Bristles from the inferior fascicle of the dorsal branch. 13. A portion of the skin of the belly magnified.

The *Nereides* in this collection were, 1. *Nereis margarita-*

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In other families there were specimens of *Cirrhatulus medusa* and of *Amphitrite alveolata*, and several of a marine *Lumbricus*, but so much injured and broken that I did not attempt to ascertain the species. Of the family *Lumbricidæ* there was another member, which first of all attracted my attention by the remarkable development of the anterior bristles that form, by their convergence, a large brush apparently terminating the head. This worm probably belongs to the genus *Trophonia* of Audouin and Milne-Edwards, but I know this genus only by the incidental and slight notice taken of it in their work on the Annelides errantes; and have seen no characters either of it or of its species.

TROPHONIA? GOODSIRII.

Plate XI. fig. 1—10.

DESC. *Worm* from 3 to 4 inches long, as thick as a swan's quill, distinctly annulated, tapering insensibly backwards to an obtuse point, subcylindrical, but so flaccid after maceration in spirits that the sides almost fall together, of a uniform earthy brown colour or blueish underneath, rough with numerous granulations which are somewhat larger on the dorsal than on the plane ventral surface. The cuticle or outer skin is easily separable from the body, which then appears of a dull leaden blue colour, more or less iridescent. Front armed with a brush of long hair-like bristles. *Segments* between 50 and 60, homologous, narrower than broad, granulous, somewhat puckered and thickened on the sides, on which there are two distant bundles of non-retractile bristles, but no papillous feet. *First segment* very small, and as it were drawn within the second: *mouth* subterminal, circular, edentulous, and unfurnished with organs of any kind. The *second* segment is rather less than the third, and from its anterior edge there

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